

We Claim:

1. A method of depositing an antisoiling composition on an antireflective substrate comprising vaporizing an antisoiling composition and depositing the antisoiling composition onto an antireflective substrate, wherein the antisoiling composition is selected from the group consisting of:

$C_nF_{2n+1}O(CF(CF_3)CF_2O)_zCF(CF_3)C(O)NHC_xH_{2x}Si(L)_3$ wherein n is 1 to 4, z is 3 to about 15 and x is 1 to about 10 and L is selected from the group consisting of $-OR$ and $-NR'_2$ wherein R is an alkyl group containing 1 to about 10 carbon atoms and R' is selected from the group consisting of H and an alkyl group containing 1 to about 10 carbon atoms;

$X-CF(CF_3)(OCF_2CF(CF_3))_mO(C_nF_{2n})O(CF(CF_3)CF_2O)_qCF(CF_3)-X$,

wherein m is an integer of 0 to about 40, n is an integer of 2 to 4, q is an integer of 0 to about 40, wherein both m and q are not equal to 0, and X is $-C(O)NH(CH_2)_qSi(L)_3$ wherein q is 1 to about 10 and L is selected from the group consisting of $-OR$ and $-NR'_2$ wherein R is an alkyl group containing 1 to about 10 carbon atoms and R' is selected from the group consisting of H and an alkyl group containing 1 to about 10 carbon atoms;

$XCF_2O(CF_2O)_m(C_2F_4O)_pCF_2X$ wherein m is 1 to about 20, p is 1 to about 20 and X is $-C(O)NH(CH_2)_qSi(L)_3$ wherein q is 1 to about 10 and L is selected from the group consisting of $-OR$ and $-NR'_2$ wherein R is an alkyl group containing 1 to about 10 carbon atoms and R' is selected from the group consisting of H and an alkyl group containing 1 to about 10 carbon atoms; and

combinations thereof,

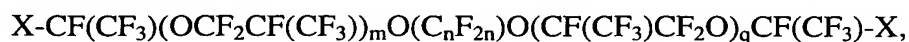
wherein the average molecular weight of the antisoiling composition is about 800 to about 6000.

2. A method according to claim 1 wherein vaporizing takes place at pressures less than 0.01 mmHg.

3. A method according to claim 1 wherein vaporizing takes place at temperatures of at least 80°C.

4. A method according to claim 1 wherein the antisoiling composition has an average molecular weight of about 900 to about 4000.

5. A method according to claim 1 wherein the antisoiling composition is selected from the group consisting of: $C_3F_7O(CF(CF_3)CF_2O)_zCF(CF_3)C(O)NHC_3H_6Si(OCH_3)_3$, wherein z is 3 to about 15;



wherein m is an integer of 0 to about 40, n is an integer of 2 to 4, q is an integer of 0 to about 40, wherein both m and q are not equal to 0; $XCF_2O(CF_2O)_m(C_2F_4O)_pCF_2X$ wherein m is 1 to 20, p is 1 to 20, and X is $-C(O)NH(CH_2)_3Si(OCH_3)_3$; and combinations thereof.

6. A method according to claim 1 wherein the antisoiling composition is $C_3F_7O(CF(CF_3)CF_2O)_zCF(CF_3)C(O)NHC_3H_6Si(OCH_3)_3$.

7. A method according to claim 1 wherein the antisoiling composition has an average molecular weight of about 900 to 4000.

8. A method according to claim 1 wherein the antisoiling composition deposited onto the antireflective substrate has a thickness of 20 to 500 angstroms.

9. A method according to claim 1 wherein the antisoiling composition deposited onto the antireflective substrate has a thickness of 40 to 100 angstroms.

10. A method according to claim 1 wherein the antisoiling composition deposited onto the antireflective substrate forms a monolayer.

11. A method according to claim 1 wherein vaporizing the antisoiling composition comprises placing the antisoiling composition and antireflective substrate into a chamber, heating the chamber containing the antisoiling composition, and decreasing the pressure in the chamber.

12. A method according to claim 1 wherein the antireflective substrate comprises an antireflective ophthalmic lens.

13. A method according to claim 12 wherein the antireflective ophthalmic lens comprises a polycarbonate resin and an antireflective coating on the surface of the polycarbonate resin.

14. A method of depositing an antisoiling composition on an antireflective coated ophthalmic lens comprising vaporizing an antisoiling composition and depositing the antisoiling composition onto an antireflective coated ophthalmic lens, wherein the antisoiling composition is selected from the group consisting of:

$C_nF_{2n+1}O(CF(CF_3)CF_2O)_zCF(CF_3)C(O)NHC_xH_{2x}Si(L)_3$ wherein n is 1 to 4, z is 3 to about 15 and x is 1 to about 10 and L is selected from the group consisting of $-OR$ and $-NR'_2$ wherein R is an alkyl group containing 1 to about 10 carbon atoms and R' is selected from the group consisting of H and an alkyl group containing 1 to about 10 carbon atoms;

$X-CF(CF_3)(OCF_2CF(CF_3))_mO(C_nF_{2n})O(CF(CF_3)CF_2O)_qCF(CF_3)-X$,

wherein m is an integer of 0 to about 40, n is an integer of 2 to 4, q is an integer of 0 to about 40, wherein both m and q are not equal to 0, and X is $-C(O)NH(CH_2)_qSi(L)_3$ wherein q is 1 to about 10 and L is selected from the group consisting of $-OR$ and $-NR'_2$ wherein R is an alkyl group containing 1 to about 10 carbon atoms and R' is selected from the group consisting of H and an alkyl group containing 1 to about 10 carbon atoms;

$XCF_2O(CF_2O)_m(C_2F_4O)_pCF_2X$ wherein m is 1 to about 20, p is 1 to about 20 and X is $-C(O)NH(CH_2)_qSi(L)_3$ wherein q is 1 to about 10 and L is selected from the group consisting of $-OR$ and $-NR'_2$ wherein R is an alkyl group containing 1 to about 10 carbon atoms and R' is selected from the group consisting of H and an alkyl group containing 1 to about 10 carbon atoms; and

combinations thereof,

wherein the average molecular weight of the antisoiling composition is about 800 to about 3500 and wherein the antisoiling composition is placed in a first chamber and the antireflective coated ophthalmic lens is placed in a second chamber connected to the first

chamber such that vaporized antisoiling composition from the first chamber can deposit on the antireflective coated ophthalmic lens in the second chamber.

15. A method according to claim 14 wherein the first chamber is heated, the second chamber remains at ambient temperature, and the pressure in both the first and second chamber is below atmospheric pressure.

16. A method of preparing an antireflective film stack comprising depositing an antireflective layer onto the surface of a transparent substrate and vapor depositing an antisoiling layer onto the surface of the antireflective layer wherein the antisoiling layer is selected from the group consisting of:

$C_nF_{2n+1}O(CF(CF_3)CF_2O)_zCF(CF_3)C(O)NHC_xH_{2x}Si(L)_3$ wherein n is 1 to 4, z is 3 to about 15 and x is 1 to about 10 and L is selected from the group consisting of $-OR$ and $-NR'_2$ wherein R is an alkyl group containing 1 to about 10 carbon atoms and R' is selected from the group consisting of H and an alkyl group containing 1 to about 10 carbon atoms;

$X-CF(CF_3)(OCF_2CF(CF_3))_mO(C_nF_{2n})O(CF(CF_3)CF_2O)_qCF(CF_3)-X$,

wherein m is an integer of 0 to about 40, n is an integer of 2 to 4, q is an integer of 0 to about 40, wherein both m and q are not equal to 0, and X is $-C(O)NH(CH_2)_qSi(L)_3$ wherein q is 1 to about 10 and L is selected from the group consisting of $-OR$ and $-NR'_2$ wherein R is an alkyl group containing 1 to about 10 carbon atoms and R' is selected from the group consisting of H and an alkyl group containing 1 to about 10 carbon atoms;

$XCF_2O(CF_2O)_m(C_2F_4O)_pCF_2X$ wherein m is 1 to about 20, p is 1 to about 20 and X is $-C(O)NH(CH_2)_qSi(L)_3$ wherein q is 1 to about 10 and L is selected from the group consisting of $-OR$ and $-NR'_2$ wherein R is an alkyl group containing 1 to about 10 carbon atoms and R' is selected from the group consisting of H and an alkyl group containing 1 to about 10 carbon atoms; and

combinations thereof,

wherein the average molecular weight of the antisoiling composition is about 800 to about 6000.

17. A method according to claim 16 wherein the transparent substrate comprises an ophthalmic lens.

5 18. A method according to claim 16 wherein the antireflective layer is selected from the group consisting of a metal oxide, a metal fluoride, a metal nitride, and a metal sulfide.

19. A method according to claim 18 wherein the antireflective layer comprises silicon dioxide.

10 20. A method according to claim 16 further comprising depositing multiple antireflective layers onto the surface of the transparent substrate before vapor depositing the antisoiling layer.